



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

D117-762-041
Job Sheet 200536



Part No: D117-762-041

Job Qty: 1 pcs

Part Name: Replacement Skidtube



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 9/12/19

Job Tracking No:

Due Date: 10/18/19

Created By: Marie Lajeunesse

Type: Stock

Description: SIOP

Note: DWG D3582 REV E IPP Rev:A 07.06.11 New Issue EC IPP Rev:B 08-02-22 change to revA as per dwg DD
verF by:EC IPP REV:C 15.06.11 AS PER CHG002 DD VERF:JLM IPP REV:D 16.02.05 DWG REV:C (ecn16-
514) DD VERF:JLM IPP REV:E 17.01.17 as per dwg REV.D DD VERF:JLM

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier	Lead Time	
130	Skidtubes - 1	1 pcs	10/18/19		0.00	3.30	Skidtubes - 1		00
							Skidtubes - 2		
							Skidtubes - 3		
							Skidtubes - 4		
							Skidtubes - 5		
							Skidtubes - 6		
							Skidtubes - 7		
140	Skidtubes - 2 - B4B	1 pcs	10/18/19		0.00	3.30	Skidtubes - 1 - B4B		88
							Skidtubes - 2 - B4B		
							Skidtubes - 3 - B4B		
							Skidtubes - 4 - B4B		
							Skidtubes - 5 - B4B		
							Skidtubes - 6 - B4B		
							Skidtubes - 7 - B4B		
150	QC 10	1 pcs	10/18/19		0.00	0.00	QC 10 - 10		3
							QC 10 - 18		
							QC 10 - 24		
							QC 10 - 43		
							QC 10 - 50		
							QC 10 - 58		
							QC 10 - 9		
160	QC 5	1	10/18/19		0.00	0.00	QC 5 - 10		
							QC 5 - 12		
							QC 5 - 17		
							QC 5 - 18		
							QC 5 - 19		
							QC 5 - 22		
							QC 5 - 24		
							QC 5 - 3		
							QC 5 - 43		



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CANADA
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Container No: S216446



Part: D117-762-041

Job No: 200536

Serial No/Batch: S216446

Revision:

Inspector:

Exp Date:

Instructions: FAA STC SR01853SE 19/04/04 TC STC LoA RI

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						QC 5 - 49	
						QC 5 - 51	
						QC 5 - 58	
						QC 5 - 68	SEP 25 2019
						QC 5 - 9	
						QC 5 - 50	
						QC 5 - 30	
						QC 5 - 40	
						QC 5 - 61	
						QC 5 - 81	
						Handfinish - 1 - 1 - B4B	
						Handfinish - 1 - 2 - B4B	
						Handfinish - 1 - 3 - B4B	SEP 26 2019
170 Handfinish - 1-1 Chemical-B4B	1 pcs	10/18/19	0.00	0.97		Handfinish - 1 - 4 - B4B	
						Handfinish - 1 - 5 - B4B	
						Handfinish - 1 - 6 - B4B	
						Handfinish - 1 - 7 - B4B	
						Handfinish - 1 - 8 - B4B	
						Handfinish - 1 - 9 - B4B	
						Handfinish - 1 - 10 - B4B	
						Handfinish - 1 - 11 - B4B	
						Handfinish - 1 - 12 - B4B	
						Handfinish - 1 - 13 - B4B	
						Handfinish - 1 - 14 - B4B	
						Handfinish - 1 - 15 - B4B	
						Handfinish - 1 - 16 - B4B	
						Handfinish - 1 - 17 - B4B	
						Handfinish - 1 - 18 - B4B	
						Handfinish - 1 - 19 - B4B	
						Handfinish - 1 - 20 - B4B	
						Handfinish - 1 - 21 - B4B	
						Handfinish - 1 - 22 - B4B	
180 QC 7	1 pcs	10/18/19	0.00	0.00		QC 7 - 10	
						QC 7 - 13	
						QC 7 - 14	
						QC 7 - 15	
						QC 7 - 17	
						QC 7 - 18	
						QC 7 - 19	
						QC 7 - 2	
						QC 7 - 28	

Plex 9/12/19 10:52 AM Dart.lajeunesse.marie

				QC 7 - 3	
				QC 7 - 30	
				QC 7 - 34	
				QC 7 - 36	
				QC 7 - 37	
				QC 7 - 41	
				QC 7 - 47	
				QC 7 - 48	
				QC 7 - 51	
				QC 7 - 58	
				QC 7 - 59	
				QC 7 - 60	11/26
				QC 7 - 9	
				QC 7 - 68	
				QC 7 - 50	
				QC 7 - 67	
				QC 7 - 40	
				QC 7 - 24	
				QC 7 - 43	
				QC 7 - 61	
				QC 7 - 81	
				QC 7 - 76	
190 Skidtubes - 3 - B4B	1 pcs	10/18/19	0.00 3.33	Skidtubes - 1 - B4B	00
				Skidtubes - 2 - B4B	
				Skidtubes - 3 - B4B	
				Skidtubes - 4 - B4B	
				Skidtubes - 5 - B4B	8E
				Skidtubes - 6 - B4B	
				Skidtubes - 7 - B4B	
200 QC 10	1 pcs	10/18/19	0.00 0.00	QC 10 - 10	
				QC 10 - 18	
				QC 10 - 24	
				QC 10 - 43	
				QC 10 - 50	
				QC 10 - 58	
				QC 10 - 9	
210 QC 5	1 pcs	10/18/19	0.00 0.00	QC 5 - 10	
				QC 5 - 12	
				QC 5 - 17	
				QC 5 - 18	
				QC 5 - 19	
				QC 5 - 22	
				QC 5 - 24	
				QC 5 - 3	
				QC 5 - 43	
				QC 5 - 49	
				QC 5 - 51	
				QC 5 - 58	
				QC 5 - 68	
				QC 5 - 9	
				QC 5 - 50	
				QC 5 - 30	
				QC 5 - 40	
				QC 5 - 61	
				QC 5 - 81	
215 Handfinish - 2-1 Pressure-B4B	1 pcs	10/18/19	0.00 0.97	Handfinish - 2 - 1 - B4B	BE B19-10-10
				Handfinish - 2 - 2 - B4B	

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					Handfinish - 2 - 3 - B4B	
					Handfinish - 2 - 4 - B4B	
220	Powdercoat - 1 White GI(A)-B4B	1 pcs	10/18/19	0.00 0.26	Powdercoat - 1 - B4B	
					Powdercoat - 2 - B4B	
					Powdercoat - 3 - B4B	
					Powdercoat - 4 - B4B	
230	QC 3	1 pcs	10/18/19	0.00 0.00	QC 3 - 10	
					QC 3 - 13	
					QC 3 - 15	
					QC 3 - 17	
					QC 3 - 18	
					QC 3 - 2	
					QC 3 - 28	
					QC 3 - 3	
					QC 3 - 30	
					QC 3 - 34	
					QC 3 - 36	
					QC 3 - 41	
					QC 3 - 51	
					QC 3 - 58	
					QC 3 - 59	
					QC 3 - 68	
					QC 3 - 9	
					QC 3 - 40	
					QC 3 - 19	
					QC 3 - 43	
					QC 3 - 24	
					QC 3 - 61	
					QC 3 - 81	
250	Handfinish - 4-1-Assembly-B4B	1 pcs	10/18/19	0.00 0.97	Handfinish - 4 - 1 - B4B	
					Handfinish - 4 - 10 - B4B	
					Handfinish - 4 - 11 - B4B	
					Handfinish - 4 - 12 - B4B	
					Handfinish - 4 - 13 - B4B	
					Handfinish - 4 - 14 - B4B	
					Handfinish - 4 - 15 - B4B	
					Handfinish - 4 - 2 - B4B	
					Handfinish - 4 - 3 - B4B	
					Handfinish - 4 - 4 - B4B	
					Handfinish - 4 - 5 - B4B	
					Handfinish - 4 - 6 - B4B	
					Handfinish - 4 - 7 - B4B	
					Handfinish - 4 - 8 - B4B	
					Handfinish - 4 - 9 - B4B	
260	QC 5	1	10/18/19	0.00 0.00	QC 5 - 10	

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				pcs		QC 5 - 12	
						QC 5 - 17	
						QC 5 - 18	
						QC 5 - 19	
						QC 5 - 22	
						QC 5 - 24	
						QC 5 - 3	
						QC 5 - 43	
						QC 5 - 49	
						QC 5 - 51	
						QC 5 - 58	
						QC 5 - 68	
						QC 5 - 9	
						QC 5 - 50	
						QC 5 - 30	
						QC 5 - 40	OCT 21 2019
						QC 5 - 61	
						QC 5 - 81	
270	Packaging 3-1 - Stock - B4B	1	10/18/19	0.00 0.00		Packaging 3 - 1 - B4B	
	pcs					Packaging 3 - 2 - B4B	
						Packaging 3 - 3 - B4B	
						Packaging 3 - 4 - B4B	
						Packaging 3 - 5 - B4B	
						Packaging 3 - 6 - B4B	
						Packaging 3 - 7 - B4B	
						Packaging 3 - 8 - B4B	
						Packaging 3 - 9 - B4B	
						Packaging 3 - 10 - B4B	
						Packaging 3 - 11 - B4B	
						Packaging 3 - 12 - B4B	
						Packaging 3 - 13 - B4B	
						Packaging 3 - 14 - B4B	
						Packaging 3 - 15 - B4B	
						Packaging 3 - 16 - B4B	
						Packaging 3 - 17 - B4B	
						Packaging 3 - 18 - B4B	
						Packaging 3 - 19 - B4B	
						Packaging 3 - 20 - B4B	
						Packaging 3 - 21 - B4B	
						Packaging 3 - 22 - B4B	
						Packaging 3 - 23 - B4B	
						Packaging 3 - 24 - B4B	DAS
						Packaging 3 - 25 - B4B	78
						Packaging 3 - 26 - B4B	9-89
						Packaging 3 - 27 - B4B	
						Packaging 3 - 28 - B4B	
						Packaging 3 - 29 - B4B	
						Packaging 3 - 30 - B4B	
						Packaging 3 - 31 - B4B	
						Packaging 3 - 32 - B4B	
						Packaging 3 - 33 - B4B	
						Packaging 3 - 34 - B4B	DAS
						Packaging 3 - 35 - B4B	21
						Packaging 3 - 36 - B4B	OCT 24 2019
275	DC - 1 - B4B	1	10/18/19	0.00 0.00		DC - 1 - B4B	6102 17 130
	pcs					DC - 2 - B4B	
280	QC 21 - FG	1	10/18/19	0.00 0.00		QC 21 - FG - 21	OCT 24 2019
	pcs					QC 21 - FG - 70	21
						QC 21 - SA - 53	6102 17 130

Part Op 130 - Skid tubes-1 (Skid tubes) 1-Cut Aft end using DT8185 2-Debur ends 3-Drill Aft Cap holes using DT8678 *** OPEN

Descriptions: AFT CAP HOLE TO .187" *** 4-Locate DT 8973 from aft cap holes & Drill Ground wire hole on top of Tube. 5-Install 3/16 cleco in Ground wire hole, then drill all X-Bolt holes using 3/16" drill. 6-Drill pilot holes for wearplates using DT8900 7-Open wearplate holes to Ø19/64" (0.297") as per Dwg D3582. 8-Drill holes for D5520-1 doubler using DT10309 A & B, locating from 4th and 5th crossbolt holes from aft using .1875 clekos. Spot drill tube using #20 drill (note 10). Remove DT10309 B. Re-install DT 10309 A drill thru tube and doubler using #20 drill (note 10), cleco as you go. Remove .1875 clekos and open holes in tube and doubler to 0.750". Remove doublers and identify orientation. 9-Debur doubler and doubler holes in skid tube. 10-Countersink doubler holes in skid tube as per Dwg. detail J and note 12 -Touch up alodine on D5520-1 doublers. 11- open ground wear holes to 0.391" as per section B-B 12-Open Aft Cap holes using .209" drill. 13-Drill pilot holes for section D-D and E-E. Holes must be laid out by hand. Mark out Center line and make sure that 6.65 and 5.906 measurements are respected. Double check before drilling, do not open holes to finish size. 12-Do not open holes of section G-G to finishes size.

140 - Skid tubes-1 (Skid tubes) 1-Weld fwd cap D2964 per dwg D3582 and QSI 004 A/R AL ROD
Batch: 138989 2-Grind flush

150 - QC10 (QC10- Inspect visual per QSI004- ground welds)

160 - QC5 (QC5- Inspect part completeness to step on W/O)

170 - HandFinish1 (Chemical Conversion Coat per QSI005 4.1)

180 - QC7-1 (QC7-Inspect Chemical Conversion Coat)

190 - Skid tubes-1 (Skid tubes) ***MASK OFF HOLES OF SECTION F-F (DO NOT C'SINK) 1-Open X-Bolt holes to finish size as per Dwg D3582, sections D-D, E-E, G-G as per Dwg. 2-Counter Sink X-BOLT holes as per Dwg D3582 D-D, E-E and G-G.***Do NOT countersink holes of section F-F). 3-Debur and blow out chips from inside of tube, prep. tube for welding. 4-Install doublers using DT10309 B. Shave rivets as required. 5-Bond web as per Dwg D3582 & QSI 015 A/R 241 Sika Flex Batch: 5200625 Exp Date: 07/25/2020 6- Swage x-bolt spacer as per dwg and Section F-F QSI002. 7-Weld x-bolt spacers as per Dwg D3582 section D-D, E-E and G-G. A/R AL ROD
Batch: 138989 8-Grind welds flush

200 - QC10 (QC10- Inspect visual per QSI004- ground welds)

210 - (QC5- Inspect part completeness to step on W/O)

215 - HandFinish2 (Pressure Wash per QSI005 4.3/ Clean and remove all markings) Touch-up alodine as per QSI

220 - Powdercoat1 (White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum) START TIME _____ OVEN TEMPERATURE: _____ FINISH TIME: _____

230 - (QC3- Inspect Part Finish)

250 - HandFinish4 (Assemble as per dwg) 1-Inspect for Foreign objects 2-Install Aft cap as per Dwg D3582, Detail "C" A/R 241 Sika Flex Batch: 5200625 Exp Date: 20/07 3-Install Wearplates as per Dwg D3582 , Note:Install Bolt and washer on Ground Wire inserts on top of tube see section D-D of dwg D3582 *****Do not install bolts where indicated on Dwg(Note #6)***** 4- Wing Walk as per Dwg D3582 and QSI 005 4.4

260 - (QC5- Inspect part completeness to step on W/O)

270 - Identify and pack for shipping as per PPP D117-762-041 Location :FG081

275 - (Document Control) Photocopy bluefile & type labels per PPP D117-762-041 CHG003

280 - (QC21- Final Inspection - Work Order Release)

wing walk 5209362

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D3582-1-BENT	Skidtube Assembly BK117	1 pcs (1 ea)	130-Skidtubes - 1	5201225
D5520-1	Doubler	2 pcs (2 ea)	130-Skidtubes - 1	5172448
D2964	Cap	1 pcs (1 ea)	140-Skidtubes - 2 - B4B	51665146500
CR3212-5-05	Rivet	68 pcs (68 ea)	190-Skidtubes - 3 - B4B	5174112
D2971	Cross Bolt Spacer	1 pcs (1 ea)	190-Skidtubes - 3 - B4B	5097884
D3584-1	Web	1 pcs (1 ea)	190-Skidtubes - 3 - B4B	5174779
D3662-1	Crossbolt Spacer	3 pcs (3 ea)	190-Skidtubes - 3 - B4B	5173644
D3662-3	Crossbolt Spacer	1 pcs (1 ea)	190-Skidtubes - 3 - B4B	5173644
D5304-1	Crossbolt Spacer	2 pcs (2 ea)	190-Skidtubes - 3 - B4B	5173644
ALS4-1032-130	Rivnut	36 Ea (36 ea)	250-Handfinish - 4-1-Assembly-B4B	5057257
ALS4-428-165	Insert	2 Ea (2 ea)	250-Handfinish - 4-1-Assembly-B4B	5147561
AN3-5A	Bolt	2 Ea (2 ea)	250-Handfinish - 4-1-Assembly-B4B	5216385
AN3C4A	Bolt	28 Ea (28 ea)	250-Handfinish - 4-1-Assembly-B4B	5218780
AN4-4A	Bolt	2 Ea (2 ea)	250-Handfinish - 4-1-Assembly-B4B	5193116
D2965	Cap	1 pcs (1 ea)	250-Handfinish - 4-1-Assembly-B4B	5166570
D3508-11	Wearplate Aft Center	1 pcs (1 ea)	250-Handfinish - 4-1-Assembly-B4B	5172981
D3508-13	Wearplate Aft	1 pcs (1 ea)	250-Handfinish - 4-1-Assembly-B4B	5172983
D3508-3	Wearplate Fwd Center	1 pcs (1 ea)	250-Handfinish - 4-1-Assembly-B4B	5148273
D3508-9	Wearplate Fwd	1 pcs (1 ea)	250-Handfinish - 4-1-Assembly-B4B	5172977
D3558-11	Gasket Aft Center	1 pcs (1 ea)	250-Handfinish - 4-1-Assembly-B4B	5210680
D3558-13	Gasket Aft	1 pcs (1 ea)	250-Handfinish - 4-1-Assembly-B4B	5210686
D3558-3	Gasket Center Fwd	1 pcs (1 ea)	250-Handfinish - 4-1-Assembly-B4B	5210684
D3558-9	Gasket Fwd	1 pcs (1 ea)	250-Handfinish - 4-1-Assembly-B4B	5210682
NAS1149C0332R	Washer (AN960C10L)	28 Ea (28 ea)	250-Handfinish - 4-1-Assembly-B4B	5218154
NAS1149D0332J	Washer	2 Ea (2 ea)	250-Handfinish - 4-1-Assembly-B4B	5178378
NAS1149D0416J	Washer	2 Ea (2 ea)	250-Handfinish - 4-1-Assembly-B4B	5178378

M.H. 012456

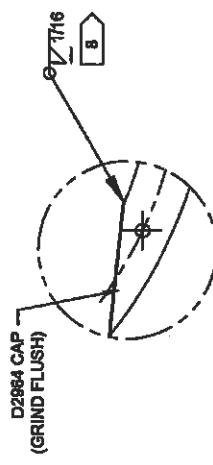
Job Allocations

Operation	Component Part	Required	Inventory	Allocated
130-Skidtubes - 1	D3582-1-BENT	1	5	0
	D5520-1	2	6	0
140-Skidtubes - 2 - B4B	D2964	1	24	0
	CR3212-5-05	68	282	0
190-Skidtubes - 3 - B4B	D2971	1	63	0
	D3584-1	1	6	0
	D3662-1	3	19	0
	D3662-3	1	36	0
	D5304-1	2	9	0
	ALS4-1032-130	36	6,008	0
250-Handfinish - 4-1-Assembly-B4B	ALS4-428-165	2	72	0
	AN3-5A	2	38	0
	AN3C4A	28	584	0
	AN4-4A	2	50	0
	D2965	1	52	0
	D3508-11	1	13	0
	D3508-13	1	9	0
	D3508-3	1	16	0
	D3508-9	1	14	0
	D3558-11	1	13	0
	D3558-13	1	5	0
	D3558-3	1	14	0
	D3558-9	1	14	0
	NAS1149C0332R	28	3,072	0
	NAS1149D0332J	2	1,944	0
	NAS1149D0416J	2	1,781	0

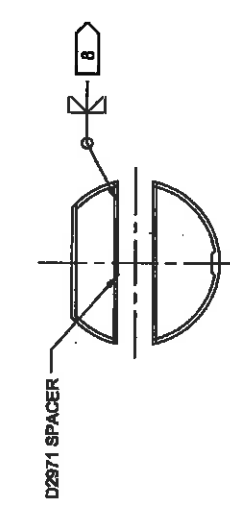
Part Specifications

Specifications could not be found.

1 2 3 4 5 6 7 8

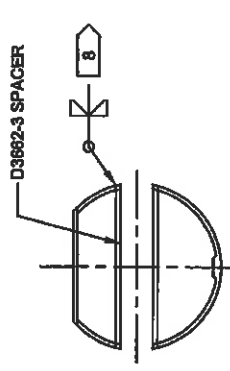


DETAIL C
SCALE 4X



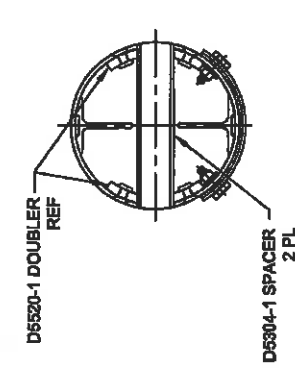
SECTION D-D
SCALE 4X

SECTION D-D NOTES
AFTER BENDING AND DRILLING ASSEMBLY
PERFORM THE FOLLOWING:
1. CHAMFER HOLE 0.030 x 45°
2. INSERT D2871 SPACER
3. WELD INTO PLACE AND GRIND FLUSH
4. PASS Ø0.750 DRILL TO REMOVE SPILL OVER



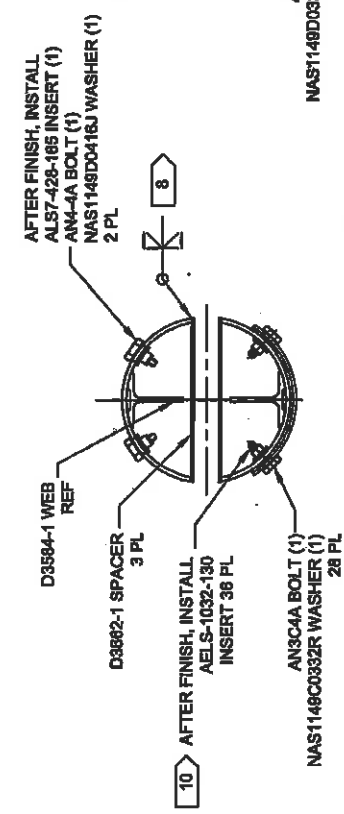
SECTION E-E
SCALE 4X

SECTION E-E NOTES
AFTER BENDING AND DRILLING ASSEMBLY
PERFORM THE FOLLOWING:
1. CHAMFER HOLE 0.030 x 45°
2. INSERT D3862-3 SPACER
3. WELD INTO PLACE AND GRIND FLUSH
4. PASS Ø0.872 DRILL TO REMOVE SPILL OVER



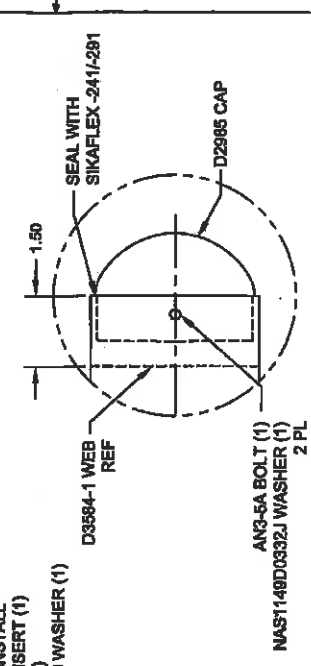
SECTION F-F
SCALE 4X

SECTION F-F NOTES
AFTER BENDING AND DRILLING ASSY
PERFORM THE FOLLOWING:
1. INSERT D5304-1 SPACER
2. SWAGE TO Ø0.565 ±0.005 ±0.000 X 1.0
3. OPEN THRU HOLE TO Ø0.625
4. GRIND FLUSH



SECTION G-G
SCALE 4X

SECTION G-G NOTES
AFTER BENDING AND DRILLING ASSEMBLY
PERFORM THE FOLLOWING:
1. CHAMFER HOLE 0.030 x 45°
2. INSERT D3862-1 SPACER (3 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. PASS Ø0.515 DRILL TO REMOVE SPILL OVER



DETAIL H
SCALE 4X

DESIGN	PH	DART AEROSPACE USA, INC
DRAWN	AJS	EUGENE, OR
CHECKED	WES	
MFG. APPR.		DRAWING NO. D3582
APPROVED		TITLE BK 117 SKIDTUBE ASSEMBLY
DATE	17.03.27	SCALE NTS

RELEASED
2017-08-11

REV. E
SHEET 3 OF 4
NTS

PROPERTY OF DART AEROSPACE USA, INC
THIS DOCUMENT IS UNCLASSIFIED
DATE 08-11-2017 BY 60322 UCBAW



Entered: _____ Date: _____

WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. _____

Route update only ☐

Job: _____ Part No. _____		DISPOSITION		DEPARTMENT/PROCESS				QTY Affected :		MRB (QS1042)					
Date : _____		Sequence #: _____		Rework ☐ Scrap ☐ Use-as-is ☐		Cross tube ☐ Small Fab ☐ Finishing ☐		Eng. (Non-AW) ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐		Engineering ☐ Water Jet ☐ Supplier ☐ Quality ☐					
Description Work Order Deviation				Disposition											
Root Cause Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Preservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors ☐				FAULT CATEGORY											
				Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled ☐ Other/Details: _____				Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐				Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐			
				Completed By											
				Lead hand / Supervisor											
				QC / QA Coordinator											